

SPANISH HYPOCORISTICS: TOWARDS A UNIFIED PROSODIC ANALYSIS*

John M. Lipski
University of New Mexico

This article analyzes Spanish hypocoristics formed by productive modification of the base name, e.g. *Roberto* > *Beto*, *Josefa* > *Fefa*, *Federico* > *Fico*, etc. An originally disparate set of patterns is shown to result from a single basic template and a mapping algorithm of maximal simplicity. By employing the theory of Prosodic Morphology, it is possible to eliminate all reference to a CV level of representation and even reference to entire syllables; the templates are encoded directly in terms of syllabic licensers. Hypocoristics derived from antepenultimately-stressed names (e.g. *Tránsito* > *Ta(n)cho*) result from successive applications of a prosodic circumscription function, which takes as its domain the entire phonological word. Finally, 'reduplicative' hypocoristics of the form *Rodolfo* > *Fofó* are shown to result not from reduplication, but rather from further simplification, the truncation of the first consonant; repetition of the remaining consonant is an automatic consequence of template satisfaction, and the de facto C/V tier separation arising from the totally predictable hypocoristic template.

1. INTRODUCTION

In many languages, the study of structured paralinguistic processes such as language games and hypocoristic formation provides valuable insights into the phonological structures which underlie normal speech. In particular, the internal structure of syllables, possible syllable types, the existence of C-V templates, processes of copying and reduplication and the relationships among various levels of prosodic representation have drawn on collateral evidence from the types of conscious linguistic manipulation mentioned above.

The present study is devoted to processes of hypocoristic formation in Spanish, a language which has been the centerpiece for many recent theoretical proposals concerning syllable structure and its relation to higher prosodic structures. The results, in addition to confirming and extending earlier observations on Spanish nickname formation, provide evidence of a more finely-grained set of prosodic structures and constraints than has been proposed in work to date. In particular, the data from Spanish hypocoristics provide support for the developing theory of Prosodic Morphology, in which prosodic units such as the mora, syllable, foot, etc. form the basis for mapping to a template, instead of a less ramified C-V level of representation. The details of mapping to the Spanish hypocoristic template suggest that even the syllable is not a prosodic prime. At the same time, the concept of MINIMAL PHONOLOGICAL WORD, tentatively considered the largest prime in Prosodic Morphology, must be supplemented by the addition of the FULL PHONOLOGICAL WORD in order for the entire range of Spanish hypocoristics to be generated. Finally, the treatment of hypocoristics formed from names with antepenultimate stress supports the concept of edge-in association to a template.

Since the basis for many Spanish hypocoristic patterns lies in child language, or in adults' deliberate simplification when speaking to children, the discovery of a multi-leveled prosodic structure in hypocoristics reinforces claims that such structures form an integral part of natural languages. The discussion is organized as follows. Section 2 gives basic data on Spanish hypocoristic formation. Section 3 contains a first approximation to Spanish hypocoristic templates, demonstrating the insufficiency of an approach in which the template is simply defined as a sequence of individual CV values. Section 4 begins the reanalysis of Spanish hypocoristics within the theory of Prosodic Morphology. Section 5 incorporates hypocoristics in which syllable-final nasals break the usual CVCV pattern. Section 6 contains a detailed description of the mapping functions which produce most Spanish hypocoristics. Section 7 broadens the discussion to include hypocoristics

such as *Fico* < *Federico*. In section 8, the putatively reduplicative nature of certain hypocoristics is addressed, and an alternative explanation is proposed. Section 9 concludes the discussion.

2. MAJOR SPANISH HYPOCORISTIC PATTERNS

2.1. Spanish exhibits two types of nicknames. In the first type, the name is replaced by a phonologically unrelated lexical item, usually a common noun or adjective felt to bear on the individual's appearance or personality. Such nicknames are of no phonological significance and will not be considered further at this time. The other nicknames are the hypocoristics, formed via a series of phonological processes, including truncation, reduplication, and syllabic epenthesis. Here too there are two basic mechanisms. One is based on the diminutive endings *-ito*, *-ico*, etc.: *Tito* < *Robertito*, *Albertito*, *Humbertito*; *Nico* < *Antoñico*, etc. These hypocoristics involve no modification of the stem, and will not be discussed here. Among the remaining cases, in which the stem undergoes specific phonological modifications, there is a large common intersection used in all Spanish-speaking areas.

The most thorough study of Spanish hypocoristics is Boyd-Bowman (1955), who analyzed hundreds of examples from the perspective of child language acquisition. Costenla Umaña (1982) offers more examples, as well as a more modern analysis, cast in the framework of linear phonology. Urawa (1985) and Wijk (1964) are also useful. Boyd-Bowman interprets recurring sound changes in terms of putative difficulty commonly observed in Spanish child language. No particular theoretical model is used to account for given patterns, for the existence of multiple variants for some names, nor for the existence of implicit constraints which preclude many other potential alternatives.

2.2. Since most hypocoristics are based on commonly-used first names, the extent to which they represent a productive phonological process (such as in the cases studied by Mester (1990), Poser (1984, 1990), rather than a lexicalized set is open to discussion. However, the fact that innovative names can usually be adapted to existing hypocoristic patterns indicates a degree of synchronic vigor, supplementing the recurring diachronic processes which gave rise to the common core of Spanish hypocoristics. For example, if *Nacho* is accepted as the hypocoristic for *Atanasio*, *Ignacio*, *Anastasio*, etc., then an innovative name such as **Protanasio* will also predictably take *Nacho*. Even less transparent cases of hypocoristic formation can be partially predicted: for example if *Federico* > *Quico*, *Enrique* > *Quique*, *Josefa* > *Fefa*, *Rodolfo* > *Fofo*, etc., an innovative name like **Justoneco* would predictably yield **Queco*, and **Panurdo* would yield **Dudo*. These are the types of productive hypocoristic processes which are of greatest significance to phonological theory.¹

2.3. Although most hypocoristics can be accounted for by a single basic process, to be discussed below, there exists a residue of forms which depart from established patterns in a number of fashions. The majority represent slightly altered variants of a basic hypocoristic, usually with some regional distribution. There are smaller clusters of idiosyncratic and highly regionalized forms, usually reflecting an indigenous substrate (e.g. in the Mexican Yucatan and in Quechua-speaking areas of South America). For the present study, numerous regional glossaries and monographs were consulted, supplemented by the author's own field observations. All the examples to be discussed below are found in Boyd-Bowman (1955), Costenla Umaña (1982), Urawa (1985), and Wijk (1964). Most are well-known and uncontroversial, albeit not always the most frequent in every region.

2.4. To a very large extent, Spanish hypocoristics can be characterized by a small number of well-delimited patterns, circumscribed by a single hypocoristic template. Consider the data in (1):

- (1) Beto < Alberto, Gilberto, Humberto, Roberto, etc.
 Chalo < Gonzalo
 Chana < Feliciano, Sebastiana, Susana, etc.
 Chando < Lisandro
 Chela < Graciela
 Chemo < Anselmo
 Chepa < Josefa
 Chila < Cecilia, Ercila, Lucila, etc.
 Foncho/Poncho < Alfonso
 Goyo < Gregorio
 Mencha < Clemencia
 Minda < Arminda
 Nacho < Anastasio, Atanasio, Ignacio, etc.
 Neto < Ernesto
 Pina < Delfina, Josefina, etc.
 Tencha < Hortensia,

These items exemplify the basic hypocoristic template, whose characteristics are as follows:

- (a) the template is two syllables long,²
 - (b) stress is on the first syllable: the template consists of a single trochaic foot, and
 - (c) both syllables are of the form CV. The only exception is the possibility for the first syllable to end in a nasal, homorganic with the following consonant.
- In the examples given in (1), mapping of the stem melody to the template involves the following steps:
- (i) the last two syllables of (penultimately-stressed) names are mapped to the (two) syllables of the template,
 - (ii) all semivowels and all consonants in the syllabic rhyme are truncated upon mapping to the template, except (optionally) for syllable-final nasal consonants,
 - (iii) onset clusters (of the form OBSTRUENT+LIQUID) are truncated through loss of the liquid,

- (iv) a number of predictable (although partially optional) phonological substitutions occur during mapping: /s/ > [ɛ], /f/ > [p], /si/ > [ɛ], etc. (cf. Boyd-Bowman 1955 for a more complete survey),
- (v) intervocalic /r/ either elides (in which case the resulting hiatus usually prompts the addition of an epenthetic [y]) or is replaced by [l]: *Goya* < *Gloria*, *Chayo* < *Rosario*, *Chila* < *Isidra*, *Mayo* < *Mario*, *Tuyo* < *Arturo*, etc., and
- (vi) all remaining melody material is removed through Stray Erasure.

2.5. A variant to the hypocoristics in (1) is exemplified by the data in (2):

- (2) *Chocha* < *Rosa*
Fefa/Pepa < *Josefa*
Fofo < *Adolfo*, *Rodolfo*, etc.
Lalo < *Eduardo*
Lilo < *Cirilo*
Memo < *Guillermo*
Nana < *Susana*
Pipe < *Felipe*
Quique < *Enrique*
Quico < *Federico*
Tata < *Marta*
Tita < *Margarita*
Tota < *Carlota*
Tuto < *Justo*
Yeya < *Aurelia*
Yoya < *Gloria*

These items are formed through a mapping process identical to the one just described. However, the template has an additional feature: the two syllable-initial consonants of the hypocoristic are identical (dually-linked), and are derived from the onset-initial consonant of the final syllable of the input melody. Although it is the stressed syllable of the original name which determines the point of attachment to the hypocoristic template, it is the consonant from the *weak* syllable which provides the input for reduplication.³

2.6. Consider now the data in (3), representing the (rather small) set of hypocoristics derived from names with antepenultimate stress:

- (3) *Canda* < *Cándida*
Choto < *Crisóstomo*
(Co)lacho < *Escolástico*
Lacho < *Lázaro*
Tacho/Tancho < *Tránsito*
Tobo < *Aristóbulo*
Viche < *Eurídice*

Examples like *Canda* < *Cándida* and *Choto* < *Crisóstomo* might suggest that the stressed syllable and the final syllable map to the hypocoristic template, modulo the truncation patterns mentioned above.⁴ However, forms such *Choto* < *Crisóstomo*, *Lacho* < *Lázaro*, *Tobo* < *Aristóbulo*, reveal that the mapping is more complex: the onset consonant of the penultimate syllable is combined with the (truncated) rhyme of the final syllable.

2.7. The last hypocoristic type which can be handled by predictable phonological processes is illustrated by (4):

- (4) *Fencho* < *Fulgencio*
Fico < *Federico*
Finda < *Florinda*
Jado < *Gerardo*
Mina < *Marina*
Poncho < **Pencho* < *Florencio*
Rigo < *Rodrigo*
Sago < *Santiago*
Tencho < *Terencio*

In these forms (all of which are derived from penultimately-stressed names), the input consists of the first consonant of the word, the rhyme of the penultimate (stressed) syllable, and the entire final unstressed syllable, subject to the usual consonantal modifications.⁵

2.8. If the base name has final stress, results are less predictable, since oxytonic words by definition fall outside normal Spanish stress patterns. In general, the final syllable of the base name maps to the first syllable of the hypocoristic template, while the second syllable of the template is filled by some sort of default syllable. The vowel of the final syllable in the hypocoristic is either the unspecified vowel /e/, universally used in Spanish epenthesis processes (*Beatriz* > *Biche*, *Moisés* > *Cheche*) or the morphological variants /-o/ for male names (*Sebastián* > *Chano*, *Jesús* > *Chucho*, *Luis* > *Güicho*/*Licho*, *Joaquín* > *Quino*, *Valentín* > *Tino*) or /-a/ for female names (*Isabel* > *Bela*, *Asunción*/*Concepción*/*Purificación*, etc. > *Chona*, *Cruz* > *Cucha*, *Luz* > *Lucha*, *Inés* > *Necha*, *Beatriz* > *Ticha*). The second consonant of the template has two sources. If the final syllable of the base name ends in a consonant, this consonant is usually transferred to the onset of the second syllable of the hypocoristic. This consonant newly assigned to the onset can also participate in reduplication (*Isaac* > *Caco*, *Juan* > *Nano*). If the base name ends in a stressed vowel, the second consonant of the hypocoristic is filled in by default (*José* > *Chelo*). The consonant involved is not completely predictable, but rather represents a hiatus-breaker (cf. Malkiel 1958). Occasionally, no consonant is added: *José* > *Cheo*. Very occasionally, the reduplicative aspect of the template is satisfied by copying the first consonant (*Estanislao* > *Lalo*, *Noemí* > *Mimi*). If the base name ends in a stressed vowel plus /n/, the epenthetic consonant /ɾ/ is normally added: *Germán* > *Manche*, *Benjamín*/*Fermín* > *Mincho*, *Ramón*/*Simón* > *Moncho*/*Monche*, *Joaquín* > *Quinche*/*Quincho*, etc. In names of three or more syllables with final stress, an alternative is to form hypocoristics based on the first two syllables of the name, much as occurs with the productive Spanish process of truncating words to their first two syllables, then assigning penultimate stress to the result: *profesor* > *profe*, *motocicleta* > *moto*, *bolígrafo* > *boli*, *milita/militar* > *mili*, *bicicleta* > *bici*, *policía* > *poli*, etc. Examples of hypocoristics formed in this way include *Barto* < *Bartolomé*, *Chava*/*Salva* < *Salvador*, *Pura* < *Purificación*,

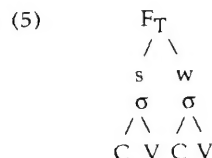
Rafa < *Rafael*, etc. These forms have been thoroughly analyzed by Prieto (1992b) within the framework of Prosodic Morphology, and will not be discussed further.

3. MAPPING TO THE HYPOCORISTIC TEMPLATE

3.1. In its most general form, the Spanish hypocoristic template takes the shape CVCV. There is no need to encode the hypocoristic stress pattern directly in the template, since the basic Spanish stress-assigning algorithm⁶ will correctly assign penultimate stress as the default for a two-syllable combination, resulting in the most common Spanish word-type: a single trochaic foot F_T (cf. also Prieto 1992a for an analysis of Spanish diminutives which is compatible with the present enterprise). However, it is clear from the preceding data that hypocoristic formation crucially depends on the prior assignment of stress to the base name. In all instances, it is the *stressed* syllable of the base name which maps to the first syllable of the template, regardless of the relative position of the stressed syllable in the name. Similarly, posttonic syllables--if they are present--map to the second syllable of the template. No scanning algorithm which does not include the metrical structure of the input material will produce the proper results for the full range of Spanish names.

If only hypocoristics of types (1) and (2), together with hypocoristics based on names with final stress (e.g. *Biche* < *Beatriz*) are considered, there would never be a need to encode (s) and (w) metrical values in the hypocoristic template, requiring, for example, that the stressed syllable of the base name match to the stressed syllable of the template, and so forth. Assuming that the input to the template consists of the final foot of the base name (extracted via the procedure to be discussed below), then by simply adopting left-to-right mapping, the stressed syllable of the base name will map to the first syllable of the hypocoristic template. If the original foot is bisyllabic, the second syllable automatically maps to the second syllable of the template, and default Spanish stress assignment produces a

trochaic foot. If the extracted foot is monosyllabic, (hypocoristic-specific) default rules fill in the second syllable of the hypocoristic template, and stress assignment proceeds as above. However, in the case of antepenultimately-stressed base names, the second syllable of the hypocoristic template is filled by an amalgam of the penultimate and final syllables of the base name, a configuration which cannot be achieved by simple left-to-right mapping. If no principled means of extracting the correct melody material from the base can be found, then the hypocoristic template must include a complete prosodic structure, in which relative stress values of the input material are already indicated, roughly:



Since it is the rightmost foot of the base name which is mapped to the hypocoristic template, this assumes that the prosodic structure of the base word is scanned at the level of the Foot projection, from right to left. An alternative to this proposal which does not require the additional meta-level of s/w representation will be presented in Section 4.

3.2. In the case of penultimately-stressed names, the Foot projection will produce the proper foot for association with the template. Similarly, names with final stress will associate the final monosyllabic foot to the hypocoristic template, after which the relevant default rules will supply the melody for the second syllable. Names with antepenultimate stress remain problematic, since the general hypocoristic pattern (3) not only extracts the tonic syllable for mapping to the first syllable of the hypocoristic template, but also combines the onset consonant of the penultimate syllable with the vowel of the final syllable, in order to map to the second syllable of the template: *Lázaro* > *Lacho*, *Tránsito* > *Tacho/Tancho*, etc. Thus all three syllables

provide input to the hypocoristic template, but obviously not in a syllable-by-syllable isomorphism. Regardless of the configurations of extrametricality which define the final three syllables of Spanish proparoxytones (cf. Harris 1983 for diverse analyses), these syllables form a single superficial constituent which can be extracted as a foot. However, by considering only syllables and feet, there is no principled way to account for the compression of material from three original syllables to a bisyllabic template. In order to account for the full range of hypocoristics exemplified in (1)-(3), some empirically justifiable method must be devised to adjudicate the association of two syllables from the base melody to a single syllable of the hypocoristic template.⁷ It would of course be possible to generate hypocoristics from antepenultimately-stressed names by brute force, namely by postulating an additional template which would only come into effect when faced with a proparoxytone. Such an approach undermines the inherent unity of template-based hypocoristic formation, a process available to Spanish speakers since early childhood, and whose basic defining characteristic is the creation of a single, simple, pattern from a variety of input configurations.

3.3. Once the proper subset of the base melody has been selected for matching to the hypocoristic template, the details of the mapping remain to be worked out; the template contains maximally simple CV syllables, whereas the configuration of the (binary) foot serving as input is potentially much more complex, with numerous individual combinations being possible. One of the fundamental tenets of any template-based phonological process is the definition of a mapping algorithm in which at least the following parameters are specified: (i) direction of mapping; (ii) whether the mapping is melody-driven or template-driven; (iii) whether spreading to adjacent elements is automatic; and (iv) how prespecified or preattached elements are to be handled. Close examination of Spanish hypocoristic mapping reveals that no mapping procedure

based only on the skeletal (C-V) level of representation will generate all and only the existing hypocoristics.

Consider first the case of truncation in the rhyme, typified by *Roberto/Alberto/Norberto* > *Beto*. If an association and truncation process based solely on a C-V tier were involved (e.g. as in Broselow and McCarthy 1984, Marantz 1984), association would have to take place in a right-to-left direction from the end of the word. This is because the number of syllables in the Spanish word is not fixed, and the hypocoristic template includes material from only the final two syllables (of penultimately-stressed words). In this case, assuming a template-driven association process, the correct result will be produced:

(6) a l b e r t o
 | | / |
 C V C V

The same template-driven right-to-left association will account for reduplication in names like *Guillermo* > *Memo*, assuming that the two C slots on the template are dually linked, and that additional justification for this unprecedented C/V tier separation can be offered:

(7) g i y e r m o
 | / |
 C V C V
 V/ = memo

Spanish in general provides no segregation of consonants and vowels on separate planes, as would be required by such a template. This matter will be returned to in Section 8. In any case, this approach requires the existence of several alternative templates for hypocoristic formation, an undesirable consequence in the light of the fundamental unity of Spanish hypocoristics.

Even assuming, for purposes of argument, an analysis such as (6)-(7), in the case of *Alfredo* > *Feyo* (assuming the [y] results from a later process, wherein loss of intervocalic /d/ provokes the introduction of a hiatus-breaking conso-

nant), right-to-left association produces the incorrect result **Redo*/**Reyo* instead of the expected *Fedo*/*Feyo*:

(8) a l f r e d o
 | | | |
 C V C V = redo

In this particular case, left-to-right association would produce the proper form, but some means would have to be devised of separating out the melody in the last two syllables of the name, to serve as the basis for template association.

3.4. Despite the difficulties encountered by (8), it is not possible to claim that all hypocoristic melody-to-template association is left-to-right, since this direction will produce incorrect results for cases like *Ricardo* > *Cayo*, *Alberto* > *Beto*, predicting the non-occurring forms **Caro* and **Bero*:

(9) a l b e r t o
 | | | |
 C V C V = bero

In the case of reduplicated forms such as *Josefa* > *Fefa* and *Guillermo* > *Memo*, left-to-right association will reduplicate the incorrect consonant:

(10) g i y e r m o
 | | | |
 C V C V
 V/ = yeyo

Similarly, if no reduplication is involved, left-to-right association will yield **Yero*, instead of the occurring *Yemo*:

(11) g i y e r m o
 | | | |
 C V C V = yero

As a further demonstration of the inadequacy of a template-matching process involving only a C-V level of representation, a derivation such as *Petrarca* > *Taca* cannot

be effected by either pattern of association. Right-to-left association to the CVCV template will produce **Raca*:

- (12) p e t r a r k a
 | | | |
 C V C V = raka

Left-to-right association will give **Tara*:

- (13) p e t r a r k a
 | | | |
 C V C V = tara

'Edge-in' association as described by Yip (1988a, 1988b) will give the desired results for *Petrarca* > *Taca*:

- (14a) p e t r a r k a {first pass}
 | |
 C V C V
 | | | |
 C V C V {second pass}

However, edge-in association is unable to account for reduplication such as *Josefa* > *Fefa*, since this association pattern predicts that the *first* or *leftmost* consonant of the (truncated portion of the) base name should prevail. Thus *Josefa* should give **Sesa*/ **Checha*, *Guillermo* should give **Yeyo*, etc.:

- (15a) g i y e r m o {first pass}
 | |
 C V C V
 \ /
 | | | |
 C V C V {2nd pass = *yeyo}

Both left-to-right and edge-in association require a principled mechanism for selecting the final syllables of the base name, including the fact that the first of the two extracted

syllables must carry the main stress in the base name. No simple melody-based association process is capable of effecting this selection.⁸

In all of these cases, allowing for melody-driven rather than template-driven association will not eliminate the difficulties. For example, assuming right-to-left melody-driven association, a name like *Alberto* would leave a vocalic slot on the template unaccounted for:

- (16) a l b e r t o
 / | |
 C V C V

The same problem occurs with left-to-right melody-driven association, which in addition links an incorrect consonant to the hypocoristic template:

- (17) a l b e r t o
 | | |
 C V C V

Edge-in melody-driven association will produce the correct results for *Alberto* > *Beto* and *Guillermo* > *Yemo*:

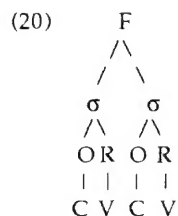
- (18a) a l b e r t o {first pass}
 | |
 C V C V
 | | | |
 C V C V {second pass}

However, under a melody-driven approach, there will be no way to derive *Petrarca* > *Taca*, since during the second pass, the two edge elements (both of them consonants) will attempt to associate to a single slot on the template:

- (19a) p e t r a r k a {first pass}
 | |
 C V C V
 | \ / |
 C V C V {second pass}

3.5. In partial summary, the series of difficulties surveyed above demonstrates that consideration of only a C-V tier misses the fundamental nature of truncation in Spanish hypocoristics: all coda consonants are eliminated, and the second member of the syllabic onset is also eliminated, to produce a canonical CV syllable. The process is based entirely on the need to achieve a particular syllabic pattern, a unitary process which takes as input the syllabic structure of the base name. To deal with syllabic truncation as part of a 'direction of association' mapping of melody to a monolithic template with no internal structure is to lose sight of the fact the syllables are truncated on a syllable-by-syllable basis. Serving as a backdrop to the impossibility of ignoring the prosodic structure of the base name is the need to extract melodic material from the base beginning at the tonic syllable, regardless of the relative position of this syllable in the name. Finally, even if some means were devised to derive all the forms in (1) and (2) through a single process of melody-to-template association, there would still be no means of deriving the hypocoristics in (3) and (4), in which intermediate melody material is skipped in a fashion which cannot be predicted by a template.

3.6. In view of the preceding considerations, the Spanish hypocoristic template cannot consist only of a unidimensional C-V configuration, but must include at the very least two syllable templates, in themselves reductions of the general Spanish syllabic template. A closer approximation is:



Each syllable extracted from the base associates individually to the respective syllable sub-template, in a fashion to be discussed below. Only one syllable at a time is parsed for matching to the template. This eliminates most of the need to specify direction of association. In Section 4, the need to specify individual C and V will also be eliminated. Directionality is still an issue in the case of complex onsets, and will be treated in Section 4.

4. SPANISH HYPOCORISTICS AND PROSODIC MORPHOLOGY

4.1. The degree of complexity of Spanish hypocoristics, and the need to refer simultaneously to syllabic structure, metrical feet, and word boundaries, defies analysis by a phonological theory which allows only for melody-to-template association. The expanded theory of Prosodic Morphology (e.g. McCarthy and Prince [henceforth MP] 1986, 1990a, 1990b; Lombardi and McCarthy 1991) enables a wider range of phenomena to be included under the general rubric of matching to a template. The Spanish hypocoristic data, despite the initial appearance of simplicity, provide a testing ground for the full power of Prosodic Morphology.

4.2. Although Prosodic Morphology is a growing theory whose details are still being explored, several general tenets guide the research. This approach eschews the C-V skeleton as a legitimate domain upon which phonological and morphological processes can be defined. Adopted instead is a hierarchy of prosodic units, which from the smallest to the largest are: mora, syllable, foot, prosodic word. All morphological processes make reference to one or more of these levels of representation. Fundamental to the analysis of template-based morphological processes are the following postulates (excerpted from MP 1990a:209):

- (a) **Prosodic Morphology Hypothesis:** 'Templates are defined in terms of the authentic units of prosody: mora ... syllable ... foot ... prosodic word ... and so on.'

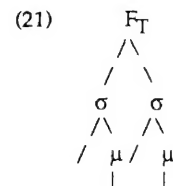
- (b) **Template Satisfaction Condition:** 'Satisfaction of templatic constraints is obligatory and is determined by the principles of prosody, both universal and language-specific.'
- (c) **Prosodic Circumscription of Domains:** 'The domain to which morphological operations apply may be circumscribed by prosodic criteria as well as by the more familiar morphological ones ...'

4.3. In exploring a variety of truncation processes involved in mapping to a template (in this case, dealing with Japanese hypocoristics), Mester (1990) has shown that a template can serve two different functions. First, it can serve as a *mapping target*, in which case 'the mapping process is in principle unconstrained by the prosodic structure of the base form ...' (Mester 1990:481). A template can also act as a *delimiter*, which circumscribes a particular domain of the base.

The Spanish hypocoristic template consists of a single trochaic foot. However, this prosodic structure cannot be limited to being a mapping target; otherwise, the final two syllables of *all* names would map to the template, regardless of the accentual patterns of the base name. This would produce anomalous results, both for antepenultimately-stressed names and for names with stress on the final syllable. The Spanish hypocoristic template operates as a prosodic delimiter, selecting an obligatorily foot-sized domain. Since template-satisfaction conditions are obligatory (e.g. MP 1990a:209), if the rightmost foot of the base word is not already binary, a second syllable is created for attachment to the template, according to language- and hypocoristic-specific default rules.

4.4. The proposed template (20) still makes reference to C and V, reflecting the fact that only a single consonant is permitted in the onset of hypocoristic syllables, and only a single (nucleus) element is normally permitted in the rhyme. However, in order to bring the analysis into conformity with the Prosodic Morphology Hypothesis, explicit stipulation of C and V is not permitted. Truncation of

branching nuclei and of coda consonants can be handled by recognizing the template as consisting of two monomoraic syllables (the question of hypocoristics incorporating rhyme-final nasals will be dealt with in the next section).⁹ The requirement that the onset consist of a single consonant is encoded directly into the hypocoristic template, in which only a single onset position is available. This is in fact the universal default for the projection of a syllable from a mora. Spanish two-member onsets require a language-specific adjunction rule (cf. Harris 1989a, 1989b; Hualde 1991b). The resulting hypocoristic template, which will account for nearly all the examples surveyed above, is:

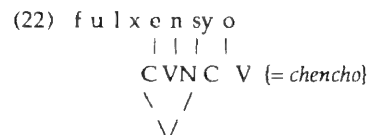


The template in effect defines part of the special 'rules' which account for Spanish hypocoristics. The rest of the story results from the interaction of a parsing function which extracts the appropriate material from the base name, and the function which maps this material to the hypocoristic template. The details will be presented in Section 5.

5. SPANISH HYPOCORISTICS WITH RHYME-FINAL NASALS

5.1. In mapping from base name to template, consonants in the syllabic rhyme are truncated, except (optionally) for /n/. The presence of a rhyme-final consonant in the hypocoristic is limited to the first syllable, however; the second syllable obligatorily ends in a vowel. If a C-V model of template formation were be adopted, it might be possible to simply add another variant template, of the form CVNCV. This procedure, although descrip-

tively accurate, would completely undermine the possibility for an analysis within the constraints of Prosodic Morphology. If a template of the form CVNVCV were to be admitted as a phonological prime, not only would it be necessary to distinguish C from V at a theoretical level, but nasals N would have to be distinguished from other consonants. Thus the 'template' would also have to contain subcategorizing feature specifications associated with each slot. If this 'tripartite' division of template elements were allowed, an additional complication would arise in the case of reduplicated hypocoristics such as *Chencho* < *Fulgencio*, where reduplication takes place 'over' the nasal. If the reduplicative template allows for consonant-vowel tier separation (in a fashion to be discussed in the next section), the nasal must operate on a *third* tier, to avoid the constraint against crossing of association lines:



Adding yet another dimension to the template is otherwise unjustified, since nasal consonants show no evidence of autonomy vis-à-vis the reduplicative template.

5.2. The key to a solution lies in the fact that in Spanish, the coda does not license place of articulation features for nasal consonants (nor, arguably, for any other consonants). A nasal in the syllable rhyme requires the presence of a following onset consonant in order to acquire a specific place of articulation. In normal Spanish, a default place of articulation is provided for nasals not immediately followed by a consonant; this point of articulation is always alveolar in prevocalic environments, while showing greater variability phrase-finally.

The relationship between syllabic structure and licensing of consonantal point of articulation is illustrated in recent work by Goldsmith (1989). In this approach, each syllable has two licensors: the syllabic node and the coda. Ac-

cording to the Licensing Criterion: 'Each distinctive feature in a representation must be licensed by its closest licensor ... each licensor may license no more than one occurrence of each feature' (Goldsmith 1989:148). In the usual hierarchical structure of the Spanish syllable, in which the onset and rhyme are sisters dependent upon the syllable node, the onset and the nucleus will be jointly licensed by the syllable node, while the coda will have a separate set of licensing criteria. In general, codas allow fewer feature distinctions than do onsets.

5.3. A crucial feature of Spanish hypocoristics is that they lack syllabic codas altogether. However, even in hypocoristics, a rhyme-final nasal can be licensed by the onset (the syllable node) of a following syllable. This is not the case for the other Spanish consonants which routinely appear in the syllable rhyme (/s/, /r/, etc.), and which are invariably truncated in the hypocoristic template.¹⁰ Point of articulation of nasals is licensed not by the coda but rather by the following syllable node. In Spanish hypocoristics, this licensing of place features by the following syllable (but, NB, *not* by default, as happens word-finally in normal Spanish words), allows for a rhyme-final nasal to appear in the hypocoristic template any time its appearance is properly licensed. This permits a CVNVCV configuration, while disallowing the patterns *CVCVN or *CVNVCVN, in which the final nasal would not be licensed.

5.4. This analysis provides further support for the claim that the hypocoristic template does not have C or V specifications at *any* level of its structure, nor does it have a fixed number of timing slots. Rather, the template is directly encoded in terms of syllable structure. In the course of mapping to the template, (onset) consonants in the base name map to the onset position of the template through the combination of language-specific and universal principles, which assign consonants to non-nuclear positions. A second consonant in the onset cannot map to the onset position (a sister to the nucleus, dependent directly on the

syllable node). Nor can mapping occur to a virtual rhyme position, to be licensed by the following syllable node.¹¹ Similarly, a rhyme-final non-nasal consonant in the base name cannot map to the hypocoristic template. A rhyme-final nasal in the leftmost syllable of the foot serving as input to the template can, however, be licensed by the following syllable node. In such circumstances, a slot is supplied automatically by a template-specific rule which furnishes a timing slot to any element which, as part of the melody-to-template mapping, has been adequately licensed. The nasal is associated to the first syllable of the hypocoristic, since the requirement that place features be licensed has been met externally, through licensing by the following syllable node. Since the template specifies only a mora representing the syllabic nucleus, plus an obligatory onset, the nasal is not forced to associate to the hypocoristic template in order to achieve template satisfaction. This accounts for the existence of variant hypocoristics with and without rhyme-final nasals.

6. MAPPING TO THE TEMPLATE

6.1. At the heart of the complexity involving Spanish hypocoristics is the range of (sometimes noncontiguous) melody material which must be extracted for mapping to the hypocoristic template. No phonological theory which allows only for a C-V level of representation can account for the full range of data, especially hypocoristics such as those in (3) and (4). Prosodic Morphology provides a viable mechanism which elegantly handles all Spanish hypocoristics in (1)-(4) in a unified fashion: *prosodic circumscription*, in which the hypocoristic template functions as a mapping target.

6.2. MP (1990a:225-7) motivate the concept of an *extrametricality function* Φ (later generalized to a *parsing function* in Lombardi and McCarthy 1991), which returns as value the constituent C which sits at edge E of a base B. The resulting value is designated $B:I<C,E>$. The material

from the base left over after application of Φ is the *residue* of Φ , designated B/Φ . Using the symbol $*$ to indicate concatenation, the entire base can be represented as the combination of the output of the parsing function and the residue:

$$(23) B = B:\Phi * B/\Phi$$

The operator $*$ does not indicate actual linear order: depending on the arguments used as input, either $B:\Phi$ or B/Φ may occur first.

This type of parsing function is well known in circumstances where extrametricality has consequences for stress, e.g. the Latin Stress Rule; in these cases, the constituent C is prosodically defined, e.g. *syllable*, *mora*, or *foot*. Individual segments can also be the target of the parsing function, now providing prosodic circumscription. The parsing function, combined with the hypocoristic template, provides all the machinery needed to generate Spanish hypocoristics based on names with final, penultimate or antepenultimate stress, without the need for specifying special templates or rules for each individual case.

6.3. Given the factoring imposed by the parsing function Φ , any morphological operation O can either apply to the constituent extracted by Φ , i.e. to $B:\Phi$, or to the remainder, B/Φ . In either case, the portion of the base which is not processed by O is concatenated to the output of O, to yield the result of the entire morphological operation. If O is to operate only on the non-extrametrical portion of the base (B/I), the process is represented as:

$$(24) O/\Phi(B) = B:\Phi * O(B/\Phi)$$

MP (1990a:226-7) exemplify (24) with Latin stress assignment, in which O represents (right-to-left) assignment of bimoraic feet. In this case, $B:\Phi$ will mark the last syllable as extrametrical, so that foot-assignment will only operate on the remainder of the word.

The opposite process, in which **O** operates on the output of Φ , is represented as:

$$(25) \quad O:\Phi(B) = O(B:\Phi) * B/\Phi$$

MP (1990a) exemplify (25) with an analysis of Arabic broken plurals, in which a parsed out constituent is mapped to an iambic template. More complex operations can be effected by combining the applications schematized in (24)-(25) (cf. Lombardi and McCarthy 1991 for some examples).

6.4. In the combinations of a morphological process **O** with the parsing function Φ illustrated in (24)-(25), the portion of the base which is not acted upon by **O** is reattached to the output of **O**. In the case of Spanish hypocoristics, however, the base suffers a net truncation. The material extracted from the base is never re-concatenated with the elements left behind; the latter are discarded forever. In order to deal with cases of truncation, Lombardi and McCarthy (1991:64) define a trivial morphological operation **DEL**, which simply deletes the material supplied as input.¹² Thus to retain the constituent parsed out by Φ and delete the remainder, the result would be:

$$(26) \quad \text{DEL}/\Phi(B) = B:\Phi * \text{DEL}(B/\Phi)$$

while to permanently delete the constituent parsed out by **I** and work only with the remainder, would be:

$$(27) \quad \text{DEL}:\Phi(B) = \text{DEL}(B:\Phi) * B/\Phi$$

6.5. The stage is now set for a unified analysis of Spanish hypocoristics derived from names having both penultimate (1) and antepenultimate (3) stress. We begin by defining a function **M** which maps extracted melody material to the Spanish hypocoristic template. **M** has the following characteristics:

- (a) It takes as input a string of appropriately processed melody material, disregarding internal prosodic structure;
- (b) It maps melody material to the first available syllabic template of the hypocoristic template, beginning with the leftmost syllable;
- (c) Mapping to the syllabic template takes place in an edge-inward fashion (cf. Yip 1988a, 1988b).

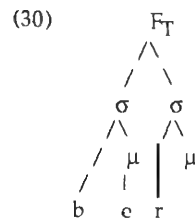
Consider first the derivation of hypocoristics derived from penultimately stressed names, e.g. *Beto* < *Alberto*. The parsing function Φ is set to extract the rightmost foot of the base name: $B:\Phi\langle\text{Foot},\text{right}\rangle$, while the deletion operator **DEL** operates on the residue, thus yielding a truncated name in which only the final foot remains. The parsed-out foot $B:\Phi\langle\text{Foot},\text{right}\rangle$ is [berto], while the deletion operator, acting on $B/\Phi = [\text{al}]$, deletes the latter material (represented here by the null set $\{\emptyset\}$):

$$(28) \quad \text{DEL}/\Phi(B) = B:\Phi\langle\text{Foot},\text{right}\rangle * \text{DEL}(B/\Phi) = \text{berto} * \{\emptyset\}$$

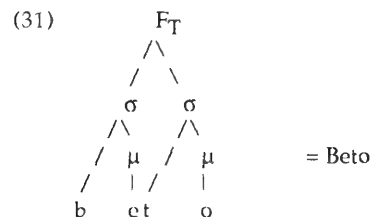
A second application of Φ , acting on the output of $\text{DEL}/\Phi(B)$, extracts the stressed (leftmost) syllable from the parsed-out foot, in this case [ber]:

$$(29) \quad (\text{DEL}/\Phi(B)):\Phi\langle\text{syl},\text{left}\rangle = \text{ber}$$

Mapping function **M** associates (29) to the first syllable of the hypocoristic template, in a template-driven edge-inward fashion:



A second application of **M** operates on the residue of (29), $\Phi/(\text{DEL}/\Phi(B)) = [\text{to}]$, associating the extracted melody elements to the remaining syllable of the template:



The entire process can be represented as:

$$\begin{aligned}
 (32) \quad & M:(\Phi<\text{syl},\text{left}>/(\text{DEL}/\Phi<\text{foot},\text{right}>)) * \\
 & M:(\Phi<\text{syl},\text{left}>/(\text{DEL}/\Phi<\text{foot},\text{right}>)) (B)
 \end{aligned}$$

When expressed in functional notation, (32) is a formidable array that belies claims of underlying simplicity. When the various stages of the process are stated in prose, however, hypocoristic mapping is quite straightforward:

- (i) The rightmost foot of the base name (the tonic syllable and any posttonic syllables) are parsed out;
- (ii) The first syllable of the parsed-out foot is mapped, edge-inward, to the first syllable of the hypocoristic template (22);
- (iii) The remaining material is mapped edge-inward to the second syllable of the hypocoristic template.¹³

6.6. The analysis just presented dealt with hypocoristics of the sort (1) derived from penultimately-stressed names. Since the parsed-out foot of such names has two syllables, the entire foot is ultimately mapped to the template, modulo the truncations performed by the mapping function **M**. However, as shown in Section 4, mapping of the extracted foot to the hypocoristic template must still take place syllable-by-syllable. The first syllable of the foot is returned directly by specifying $\langle\text{syllable},\text{left}\rangle$ as the argument of the parsing function Φ . The remaining material of

the trochaic foot, $\Phi/(\text{DEL}/\Phi(B))$, is coincidentally a syllable, and will therefore map to the second syllable of the hypocoristic template. It might seem at this point as though the partitioning of the parsed-out foot into an initial syllable and a residue is a needless complication, and that a means for simply matching each syllable of the extracted foot to the corresponding syllable of the template should be pursued. This would require a reiteration of the parsing function Φ on the extracted foot, roughly:

$$\begin{aligned}
 (33) \quad & M:(\Phi<\text{syl},\text{left}>/(\text{DEL}/\Phi<\text{foot},\text{right}>)) * \\
 & M:(\Phi<\text{syl},\text{right}>/(\text{DEL}/\Phi<\text{foot},\text{right}>))
 \end{aligned}$$

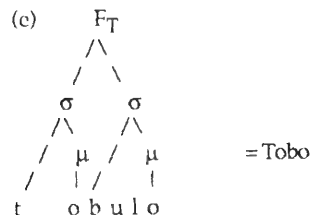
However, it turns out that allowing **M** to operate on the residue $\Phi/(\text{DEL}/\Phi(B))$, yields the proper results for hypocoristics of type (3), derived from antepenultimately stressed names. This provides a strong argument in favor of a single formative process, as represented in (32). A sample derivation taking as input a name with antepenultimate stress (*Tobo* < *Aristóbulo*) will illustrate the full operation of (32).

The combination of the parsing function Φ and the deletion operator **DEL** extracts the rightmost foot (34a); a second application of Φ selects the first syllable [to] (34b), and mapping function **M** associates this material to the first syllable of the hypocoristic template (34c). With the second application of **M**, this time to the residue [bulo] (34d-e), edge-in association of this material to the second syllable of the template produces the correct configuration:¹⁴

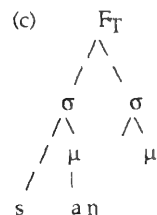
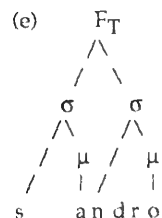
$$(34) \quad (a) \text{ DEL}/\Phi(B) = B:\Phi<\text{Foot},\text{right}> * \text{ DEL}(B/\Phi) = \text{tobulo} * [\emptyset]$$

$$(b) (\text{DEL}/\Phi(B)):\Phi<\text{syl},\text{left}> = \text{to}$$

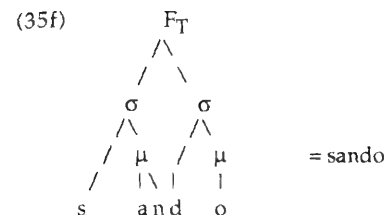


(d) $\Phi / (\text{DEL} / \Phi(B)) = [\text{bulo}]$ 

6.7. The derivation of a hypocoristic containing a rhyme-final nasal in the first syllable follows the same route as the derivations just described, plus the additional step of licensing and syllabifying the nasal. Consider as an example *Chando* < *Lisandro*:

(35) (a) $\text{DEL} / \Phi(B) = B : \Phi < \text{Foot}, \text{right} > * \text{DEL}(B / \Phi) = \text{sandro} * \{\emptyset\}$ (b) $(\text{DEL} / \Phi(B)) : \Phi < \text{syl}, \text{left} > = \text{san}$ (d) $\Phi / (\text{DEL} / \Phi(B)) = [\text{dro}]$ 

At this point, since /n/ is licensed by the following syllable node (receiving its point of articulation from /d/), the template-specific rule adjoining /n/ to the preceding syllable becomes operative; the unsyllabifiable /r/ is deleted by stray erasure:



Finally, the low-level rule changing /s/ to [č] completes the derivation.

6.8. The basic process of Spanish hypocoristic formation is maximally simple, consisting of the concatenation of elements produced by a unified extrametricality function. The process differs slightly from the examples considered by MP (1986, 1990a, 1990b) in that the operation mapping the extracted base material to the template acts upon *both* the output of the extrametricality function *and* its residue. This result is encouraging to the development of Prosodic Morphology theory, in that the application of the extrametricality function produces an exhaustive partitioning of the base, each of whose elements is equally available as input to further phonological processing. Most examples heretofore considered make use of only one half of the partition, discarding the other material. Spanish hypocoristics exemplify the logical application of a phonological process (mapping to a template) to each of the components of the partition, concatenated in the original linear order. As an additional dividend, the demonstrated existence of edge-in association in the case of hypocoristics derived from antepenultimately-stressed names suggests that this mapping pattern characterizes all mapping to the hypocoristic template. This eliminates the need for stipulating that when a syllable extracted from the base contains a two-consonant onset, it is the second member which is truncated upon mapping to the template. Edge-in association performs this operation automatically.¹⁵

7. HYPOCORISTICS OF THE FORM *FICO* < *FEDERICO*

7.1. The next matter to be accommodated is the set of alternate hypocoristics in which the first consonant of a base name consisting of more than two syllables replaces the onset consonant of the penultimate syllable in the hypocoristic: *Federico* > *Fico*, etc. Only the initial consonant of the hypocoristic comes from outside the final foot of the base name; both vowels, as well as the second onset consonant, are transferred from mapping the final two syllables onto the template, in the fashion described above. Prosodic Morphology at first seems to provide no mechanism by means of which only the initial consonant of a word can be separated out for transfer to a prosodic template. MP (1990a:231) explicitly claim that 'positive prosodic circumscription of a base may only appeal to the category Minimal Word.' They note (p. 232) that 'hypocoristics and truncated vocatives typically use a W_{\min} template.' A 'minimal word' in Spanish, however, can be no longer than a single bisyllabic foot (or perhaps a bimoraic foot, as suggested by Crowhurst 1992).¹⁶ There is no theoretical upper syllable limit of a monomorphemic Spanish word, although names of more than 4 or 5 syllables are not common. It is not possible, for example, to take the penultimate binary foot as input (although this might be possible in the case of a name like *Federico*, consisting arguably of two binary feet), since in *Fulgencio* > *Fencho*, *Terencio* > *Tencho*, the initial syllable is not part of a foot. Derivations such as *Fico* < *Federico* require considering the leftmost boundary of the *phonological word*, regardless of the number of syllables, in extracting the consonant to be mapped to the hypocoristic template. Lombardi and McCarthy (1991:39) acknowledge this need, by expanding the set of theoretical primes of prosodic morphology to include the *prosodic word*, of which the minimal word is a subset.¹⁷ The extraction of a word-initial consonant for separate mapping to a template is consistent with the tenets of contemporary phonology, in maintaining the strict *peripherality* of non-prosodically defined elements. The first consonant of a word, while not

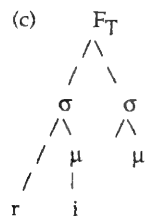
belonging to a unique prosodic constituent, is peripheral in a well-defined domain, namely the prosodic word.

7.2. The parsing function Φ can be used to pinpoint individual segments on the periphery of a given domain.¹⁸ This is illustrated in derivation such as *Fico* < *Federico*, where the initial consonant is extracted, to be subsequently superimposed on an already filled hypocoristic template. The consonant which results from this circumscription melodically overwrites the first consonant of the hypocoristic template.¹⁹ Hypocoristics such as *Fico* < *Federico* result from *two* separate processes: (1) application of the normal hypocoristic formation process, and (2) overwriting of the first consonant of the hypocoristic with the first consonant of the base name, extracted by the parsing function.

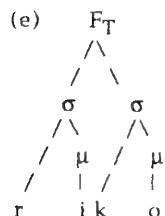
7.3. In a derivation such as *Federico* > *Fico*, mapping of the rightmost foot of the base name to the hypocoristic template takes place in the normal fashion. In the case of a reduplicative hypocoristic, this would yield *Quico* [kiko], an actually-occurring hypocoristic variant. This type of derivation will be considered further in Section 8. For a non-reduplicative template, the combination *[riko] is ruled out, since tap [r] in Spanish, while contrastive intervocalically, does not occur word-initially; only the trill [r̄] occurs, and there is no prevocalic [r]-[r̄] morphophonemic alternation. In other Spanish hypocoristics, the transformation [r]/[r̄] > [l] is common, so [liko] is a possible, although rare, alternative. If the initial [r̄] is not subsequently overwritten by the initial consonant of the base name, we can assume a low-level rule changing word-initial [r̄] to [l], operating after the derivation of the hypocoristic has been completed. The derivation up to this stage proceeds in a fashion identical to that of other Spanish hypocoristics:

$$(36) \text{ (a) } \text{DEL}/F(B) = B:F\langle \text{Foot}, \text{right} \rangle * \text{DEL}(B/F) = \text{riko} * \{\emptyset\}$$

$$\text{(b) } (\text{DEL}/F(B)):F\langle \text{syl}, \text{left} \rangle = \text{ri}$$



(d) $F/(\text{DEL}/F(B)) = [\text{ko}]$



At this point, the initial consonant of the base word is accessed:

(36f) $\text{DEL}/\Phi(B) = B:\Phi\langle\text{consonant}, \text{left}\rangle * \text{DEL}(B/\Phi) = \{f\} * \{\emptyset\}$

An operator **O** takes the consonant extracted by (36f) as input and overwrites the first consonant of the derived hypocoristic (36e). Designating the derived hypocoristic (abbreviated **H**) as the new base, another application of Φ separates out the first consonant of **H**, and **O** replaces this consonant with the consonant extracted in (36f):

(36g) $\text{O}(B:\Phi\langle\text{consonant}, \text{left}\rangle * \text{DEL}(B/\Phi)):(H:\Phi\langle\text{consonant}, \text{left}\rangle) = \text{fiko}$

8. SPANISH HYPOCORISTICS AS REDUPLICATION?

8.1. Spanish hypocoristics of the sort *Fefa* < *Josefa* have been informally described as 'reduplication' (Costenla Umaña 1982:30 calls these cases 'regressive assimilation'), but closer scrutiny of true reduplication processes casts these forms in a different light. Although no universally-accepted definition of reduplication exists, within

phonology the term usually refers to a combination of *copy* and *affixation* of part or all of a phonological domain (morpheme, word, etc.). It is not common for the copied material to overwrite the base material; the reduplicated portion may represent a truncation of the base, including additional modifications induced by the reduplicative template. The reduplicated portion may contain constant material not derived from the base. In earlier treatments (e.g. Broselow and McCarthy 1984, Marantz 1984) this was handled by *prespecification* of the template. Prosodic Morphology regards the invariant material as forming a separate morpheme which occupies a distinct plane.

8.2. Spanish 'reduplicative' hypocoristics such as *Fefa* < *Josefa* do not involve affixation to a stem; rather, a complete foot extracted from the base name is processed for mapping to the bisyllabic template. The repetition of the consonant cannot be handled as a separate morpheme, although by virtue of being dually linked, the two consonants ultimately occupy a separate plane in the template.

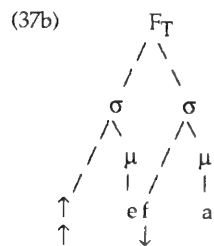
If Spanish contained a separate 'reduplicative' hypocoristic template in which the two consonantal positions were linked together (e.g. as in example (10)), there would be no conventional fashion in which the spreading of an onset consonant from the second syllable to the first could be handled without essential reference to a CV representational tier. The right-to-left spreading model proposed above is reminiscent of the treatment of Arabic templatic morphology by McCarthy (1979, 1981), in which identical elements are represented by linked slots on a CV template. MP (1990a) reanalyze these forms by placing phonological material which spreads to several nonadjacent template positions (in the case of Arabic, vowel melodies) on a separate morphemic tier. The Spanish onset consonants do not form a separate morphological entity, and moreover are nonmoraic, and cannot serve to project a syllable.

8.3. The true source of consonantal repetition in Spanish hypocoristics is the simple removal of the first consonant from the hypocoristic, following a complete derivation. Since template satisfaction demands that this onset position be filled with a consonant, and since default consonants are only added prior to the completion of a derivation (if at all), the only other source of a consonant is spreading of the onset of the second syllable. The process of spreading is identical to that which fills the Arabic templates analyzed by MP (1990a).

Consider the derivation of a 'reduplicative' form such as *Fefa* < *Josefa*. The process described in Section 6 extracts the foot [sefa] from the base name. Since the string consists of two CV sequences, association to the hypocoristic template is isomorphic; assuming the usual consonantal modifications, the forms *Chefa* or *Chepa*, both existing variants, are predicted. At this stage, the hypocoristic consists of a template in which all conditions have been satisfied. The process of Spanish hypocoristic formation provides an additional option, a further reduction of phonological material in the template. Through another application of prosodic circumscription, this time taking the filled hypocoristic H as base, the leftmost consonant is removed:

(37) (a) DEL:(H:Φ<cons, left>) * DEL/Φ = [efa]

Due to the obligatory nature of template satisfaction, and the requirement that all syllables in the hypocoristic have an onset, the only remaining consonant in the reduced hypocoristic base spreads to *both* onset positions of the template:



Despite the fact that the same consonant emerges in both syllables, this is not reduplication. The latter is an *additive* process, in which there is always a net gain in the phonological material, with or without truncation of the original base. In the Spanish case under discussion, there is a net loss of phonological material, and the superficial repetition of a consonant is an automatic consequence of the requirements of template satisfaction.

8.4. The separation of vowels and consonants, and the spreading of both to fill obligatory template positions, is typical of Semitic languages and some Native American languages (e.g. Yawelmani), in which consonantal and vocalic melodies form separate morphemes. In Spanish, there is no convincing evidence that vowels and consonants occupy separate planes in the general case. One way around the need to postulate separate vocalic and consonantal planes is through an appropriate choice of feature geometry in which non-overlapping features define consonants and vowels. In the majority of analyses, this produces an asymmetrical configuration in which vowels contain additional features which extend 'beyond' the basic consonantal features, thus accounting for the observed infrequency of transvocalic consonant harmony, versus the frequency of transconsonantal vowel harmony. Thus in the model of tier scansion elaborated by Archangeli and Pulleyblank (1987), vowels are the exclusive bearers of a Secondary Place node, dependent on the Primary Place node shared by vowels and consonants. Yip (1989) suggests that planar separation of vowel and consonant melodies is always involved in cases of apparent skeletal non-adjacency. Steriade (1987) achieves the same effect through postulating a Dorsal node exclusive to vowels, and a Velar node to describe velar and uvular consonants. Finally, underspecification of vowels or consonants can also account for apparent tier separation of vowels and consonants (e.g. the analyses of Archangeli 1991).

8.5. None of these theoretical proposals is applicable to the Spanish hypocoristics under discussion. Feature geometry is not at issue, since the consonantal spreading occurs with all potential combinations of vowels and consonants. Rather, the autosegmental effects of V/C tier separation are produced by the complete *predictability* of syllable structure. As shown, e.g. by McCarthy (1989), languages with an invariant syllable structure need not encode C and V values into underlying phonological representation, and consonants and vowels can operate in complete autonomy. It is the virtual C/V segregation produced by the invariant hypocoristic syllable structure which allows for the spreading of one consonant to both template positions, an option not possible in normal Spanish words, which do not have an invariant shape.

This account also explains why in 'reduplicative' hypocoristics it is the consonant of the second (unstressed) syllable which spreads. Due to the requirements of peripherality, the parsing function cannot access the consonant of the second syllable, which if removed would trigger spreading of the initial consonant of the hypocoristic.

9. SUMMARY AND CONCLUSIONS

The analysis of a wide variety of Spanish hypocoristics as representing reduction and simplification of the base, and utilizing a single template, is a welcome state of affairs. Hypocoristics of the sort analyzed above have frequently been inspired by, if not resulting directly from, child language, characterized by imperfect and incomplete approximation to the full structure of adult language.²⁰ Among the fundamental traits of child language are the maximization of predictability, and the gravitation toward unmarked structures. The Spanish hypocoristic template exemplifies these tendencies. The universally optimal CV syllable prevails over a wide range of Spanish syllable formats. This includes the predictable reduction of onset clusters, the elimination of complex rhymes, and the insertion of onsets (e.g. *Caco* < *Oscar*, *Coca*/*Goga* < *Olga*,

Nana < *Ana*; cf. Steriade 1988:80f. for an elaboration of syllabic truncation during template matching).

The ultimate in predictability is achieved by truncating the first consonant of the melodic material extracted from the base name. The requirement of template satisfaction causes the remaining consonant to spread to both onset positions in the template. Intuitively, such forms are felt to be the most childlike by Spanish speakers, and in implicational terms, every 'reduplicated' hypocoristic presupposes a non-repetitive variant, while the opposite entailment does not hold. Finally, the strategy of edge-in association of material extracted from the melody typifies the intersection of two of the most productive strategies of child language processing: attention to the *beginnings* and to the *ends* of discourse.

Spanish hypocoristics provide supporting evidence for the claim that templates and mapping processes can be stated exclusively in terms of prosodic units, rather than in terms of CV slots. Initially intractable data, appearing to require reference to a level of CV structure, and even to demand expansion of this structure, are amenable to a prosodically-based analysis, once the notions of syllabic licensing and prosodic circumscription are included.

ABOUT THE AUTHOR

John M. Lipski is Professor of Spanish Linguistics at the University of New Mexico.

NOTES

²⁰ I am grateful to the *Hispanic Linguistics* reviewers for numerous helpful suggestions, and for encouragement in clarifying many points. I alone am responsible for any remaining shortcomings.

²¹ Thus Boyd-Bowman (1955:337) observes that '...como por un proceso intuitivo, entre todas las variantes posibles se vienen prefiriendo justa-

mente éstas, y hasta vuelven a inventarse, independientemente, en las más diversas regiones del mundo hispánico, lo cual nos obliga a suponer, en la subconsciencia lingüística, la existencia de ciertos principios que rigen su formación.'

² A few hypocoristics are three syllables in length. These occur when the base name is more than three syllables long (e.g. *Argemira* > *Amira*, *Candelaria* > *Cayaya*, *Rosalina* > *Chalina*, etc.). Such forms will not be considered here.

³ Plénat (1984) gives some occasional examples from French hypocoristics which employ the same strategy; however, no principled account is given.

⁴ If a syllable precedes the antepenultimate in the base name, this syllable occasionally maps to the hypocoristic: *Escolástica* < *Colucha*, etc. There are also a few cases in which the entire posttonic syllable is simply skipped, a considerably less complex process: *Meta* < *Eméríta*, *Geca* < *Angélica*, *Mara* < *Márgara*, etc.

⁵ This is similar to the English truncation *Frisco* < [*San*] *Francisco*; indeed, this pattern, while otherwise unattested in English, is more typically Spanish, and the English truncation pattern may have been directly or indirectly influenced by the hypocoristic forms of this originally Spanish name. The hypocoristic *Chomo* < *Jerónimo* represents a slight variant, since the first consonant is derived from the initial consonant of the base name, the first vowel represents the stressed vowel of the base name, and the final syllable of the hypocoristic is identical to the final syllable of the base name. The difference is that another syllable intervenes in the base name, which is skipped over during mapping to the template. Another slightly different variant is *Nacho* < *Narciso*, which appears to derive from the initial (pretonic) syllable and the final (posttonic) syllable of the base name. The derivation *Tato* < *Tránsito* (Oroz 1966) illustrates a similar strategy.

⁶ This is not the proper place to enter into a detailed analysis of Spanish stress assignment, but the Spanish hypocoristic data make it clear that regardless of the structure-building metrical rules assumed for Spanish, hypocoristic formation takes as input the last 'foot,' in the broad sense which encompasses the tonic syllable and all following syllables (yielding between one and three syllables' worth of material). Most studies assigning a foot structure to Spanish converge in analyzing final stressed syllables as consisting of a single degenerate foot (cf. Harris 1983, 1991, 1992; Roca 1988, 1991; Den Os and Kager 1986 for representative analyses). However, not all of these studies assign to a single constituent the tonic and posttonic syllables of paroxytones and

proparoxytones. Harris (1983), for example, assumes that Spanish word stress is based on trochaic feet, formed right-to-left. In the case of words with antepenultimate stress, the penultimate syllable is regarded as extrametrical, and is eventually incorporated into a 'ternary' foot by stray adjunction. In later syntheses (e.g. Harris 1992), the final syllable of vowel-final words is regarded as extrametrical, while the remaining structure, scanned right-to-left, begins with a single degenerate foot (the tonic syllable). Even under this analysis, however, the final syllable would presumably be incorporated into the superficial metrical structure, making the word end in a trochee. According to this same analysis, (vowel-final) words with antepenultimate stress are exceptions to the rule assigning primary stress to the rightmost (metrical) vowel; such words thus end in a trochaic foot plus an extrametrical syllable, which once more must be adjoined to the rightmost foot in the surface realization. Thus regardless of the choice of extrametrical elements, the combination of TONIC SYLLABLE + POSTTONIC SYLLABLE(S) will form a constituent at the surface level. Roca (1988) proposes that Spanish foot trees are right-headed, and that stress is on the final rhyme of the derivational stem. Den Os and Kager (1986) offer a slight variation on the theory of Harris (1983), proposing that in proparoxytones, extrametricality is a diacritic marked on the stem, but transferred to the syllable following the derivational stem. As with Harris (1983), words with penultimate stress will end in a trochaic foot, while words with antepenultimate stress will end in a trochaic foot to which the final syllable has been adjoined, thus lumping the final three syllables into a single constituent. In more recent work, Harris (forthcoming) proposes to eliminate extrametricality altogether, and account for the varying positions of primary stress via rule-governed edge marking of metrical constituents. This theory produces substantially the same results as Harris (1983) with respect to the constituency of tonic + posttonic syllables. Words with penultimate stress end in what amounts to a trochaic foot, while words with antepenultimate stress end with a trochaic foot plus a final syllable which is not metrified by the general algorithm, but which must be ultimately incorporated into the total prosodic structure by stray syllable adjunction. Using the same edge-marking approach, Idsardi (1992) demonstrates the use of prosodic circumscription to parse off the combination of main stressed syllable + posttonic syllables, a necessary operation in several languages. That the combination of tonic + posttonic syllables forms a recognizable constituent in template-mapping processes is indirectly reflected by children's acquisition of language games such as Pig Latin (cf. Cowan and Leavitt 1990).

⁷ The requirement to access melody elements from both the penultimate and the final syllable cannot be handled via extrametricality of individual syllables. According to the seminal analysis of Harris (1983),

the penultimate syllable of Spanish proparoxytones is (lexically) marked as extrametrical, and hence is skipped over by the general rule of foot formation. A subsequent rule of Stray Adjunction adjoins the extrametrical syllable to the final foot. If mapping to the template takes as input the final foot of the base noun, whether right-to-left or left-to-right mapping is assumed, the penultimate syllable should be associated with the hypocoristic template, which does not occur. One possible way around the problem is to stipulate that association to the template takes place prior to Stray Adjunction, i.e. during the first 'pass' of the prosodic structure-building process which creates binary feet. Alternately, if right-to-left mapping from base name to template is assumed, the full Foot projection including the penultimate syllable could serve as input, by stipulating that base syllables map to the template depending on their value as strong (s) or weak (w) branches of a foot. Under this proposal, the final (w) syllable will be linked to the rightmost slot of the template, the penultimate syllable (also (w)) will be skipped, and the stressed (s) antepenultimate syllable will map to the template. However, no recourse to extrametricality will allow the 'mix-and-match' mapping of melody elements from both penultimate and final syllables of the base name. Adopting more recent analyses in which the final vowel/syllable of proparoxytones is regarded as extrametrical (e.g. Harris 1991, 1992; Roca 1988, 1991) will not improve the situation. If mapping to the hypocoristic template takes place before stray syllable adjunction incorporates the final syllable into the prosodic structure, then no material from the final syllable should appear in hypocoristics, which is patently contradicted by the full range of forms in (1)-(4). On the other hand, if full access is allowed to all tonic and posttonic syllables of the base name, there is no means of accounting for derivations such as *Aristóbulo* > *Tobo*.

⁸ Recently Mahajan (1993) has proposed yet another possible pattern of melody-to-template association: an initially edge-in association which anchors the end points, followed by a (parameterized) left-to-right or right-to-left association of the remaining material. This approach shares with the edge-in association described in (14) and (15) the impossibility of generating 'reduplicative' hypocoristics, if a syllable-by-syllable mapping is not undertaken.

⁹ The details of hypocoristic formation reveal that, regardless of whether consonants in the syllabic rhyme have moraic value in normal Spanish, they are 'weightless' during mapping to the hypocoristic template. As a fundamental prosodic unit, a mora must behave as an invariant during hypocoristic formation: 'only templates, not melodies, can supply invariant prosody' (MP 1990a:245; cf. also Hayes 1989). If the syllable-final consonant were part of the prosodic structure of the template, in the form of a bimoraic syllable, truncation or reassignment

of this consonant to the following onset would be ruled out. However, in addition to the routine truncation of rhyme-final consonants, there are a number of instances where a consonant originally in the syllable coda is attached to an onset in the corresponding hypocoristic: *Beatriz* > *Ticha*, *Cruz* > *Cucha*, *Orlando* > *Nano*. As a final observation, if consonants in the rhyme were moraic in Spanish hypocoristics, then two separate templates would have to be postulated, to account for the optional presence of a rhyme-final nasal in the first syllable.

¹⁰ Spanish /l/ also enters in a somewhat more restricted range of assimilation to the place node of a following consonant. An *Hipanic Linguistics* reader has noted that rhyme-final /l/ should also be licensed in Spanish hypocoristics, if the above proposal is valid. Unfortunately, the number of potential examples is vanishingly small. Hypocoristics of the sort *Wilche* < *Wilfredo* hint at the licensing of rhyme-final /l/, but this is admittedly a different type of hypocoristic, derived from initial truncation (cf. Prieto 1992b), and arguably involves different syllable templates.

¹¹ The presence of /č/ in *Beatriz* > *Ticha*, *Cruz* > *Cucha*, etc. appears to represent the transfer of a consonant in the syllabic rhyme to the onset of the following syllable. This supposition is supported by the well-documented conversion of /s/ > [č] in Spanish hypocoristics. It could be argued, however, that the [č] in the hypocoristic is acting as a default consonant, added to fulfil the requirements of the template and not as a transformation of syllable-final /s/ in the base word. This same /č/ appears, e.g. in *Juan* > *Juancho*, *Benjamín* > *Mincho*, *Ramón* > *Moncho*, and so forth. Since /č/ is perhaps the most frequent single consonant in hypocoristics (resulting both from the conversion of /s/ and from /si/ combinations), it is a strong candidate for default consonant in the hypocoristic template. Under this analysis, no reassignment of a rhyme-final consonant to the syllable onset is necessary. This leaves a small residue of names such as *Valentín* > *Tino* and *Isabel* > *Bela*. In both cases, variant names ending in vowels are also found: *Valentino*, *Isabela*, etc., so that the hypocoristics are arguably derived from an alternative form of the base name.

¹² Actually, the authors later suggest (Lombardi and McCarthy 1991:65-6) that what is actually deleted is the prosodic structure, leaving the melody elements intact. The latter are subsequently deleted by stray erasure, unless an independent process of (re-)syllabification incorporates them into a new prosodic structure.

¹³ It is conceivable to apply to a two-syllable residue F/Φ' an additional set of extrametricality functions, one of which would extract the leftmost consonant of the residue and the other of which would extract

the rightmost vowel of the remainder. An additional concatenation of these increasingly complex functional compositions would have to be postulated. Such an increased complexity runs contrary to the spirit of Spanish hypocoristics, which emerge spontaneously in child language and which can be accounted for by a simple concatenation of $F:\Phi$ and F/Φ , together with mapping to the template. This algorithm handles all possible base names, and no additional apparatus is required to handle names with antepenultimate stress.

¹⁴ Similar processes sometimes occur outside the domain of hypocoristics, for example in argot and caló formation. This type of language often modifies words by eliminating syllables (e.g. *Los Angeles* > *Los*) or by adding syllables (e.g. *sí* > *simón*, *sirol*), but occasionally more elaborate prosodic processes are applied. Examples such as *bicla* < *bicicleta* and *cercha* < *cerveza* (Blanco 1978) illustrate application of prosodic circumscription similar to that used in hypocoristic formation.

¹⁵ In other studies, complex mechanisms have been postulated to account for the truncation of onset clusters during mapping to a template. For example, in the model of template satisfaction described by Steriade (1988), it is stipulated that the syllabic position of base elements is preserved during mapping to the template; from this perspective, nothing further need be said about syllabification of template elements. The tendency to reduce onset clusters through truncation of the second element is handled by a special provision, tentatively attributed to a preference for an abrupt rise in sonority (e.g. via the proposals of Clements 1992). Archangeli (1991) points out that syllables are themselves prosodic templates, and subject to universal conditions applying to templates. Syllables are projected universally from morae and vowels (and language-specifically from consonants). The syllables which form part of the hypocoristic template are truncated versions of normal Spanish syllables, in that they allow no consonants in the rhyme. On the other hand, they are 'fuller' than the minimal Spanish syllable in requiring an onset. In the formation of Spanish hypocoristics, the melody material extracted from the base name is subjected to a de facto 'resyllabification' prompted by the requirements of the hypocoristic template's syllable structure. Since template satisfaction is obligatory, the hypocoristic will emerge as a sequence of two CV syllables, regardless of the input.

¹⁶ In addition to monosyllabic stressless clitics, which can arguably be excluded from the prosodic definition of 'word,' Spanish does have stressable monosyllabic words: *yo* 'I,' *él* 'he,' *as* 'ace,' in addition to numerous verb forms. In the case of the nominal elements at least, Itô (1992) suggests that requirements of prosodic minimality can be violated by *underived* elements.

¹⁷ Cf. Spring (1990) for a good demonstration of the need to consider the entire word in morphological processes.

¹⁸ MP (1990a:227) illustrate this point with an example from infixation in Tagalog, where the initial consonant of certain verb stems is extracted prior to addition of the infix.

¹⁹ Stonham (1990) provides another example of hypocoristic formation in which a process like reduplication extracts and modifies part of the melody, retaining only the copied/modified material, while discarding the original input. Martin (1988) analyzes several instances of 'subtractive' morphology, which involve truncation as well as modification of a copied melody sequence.

²⁰ This is not the appropriate forum for an in-depth exploration of the possible basis in child language of the hypocoristics considered, but some general comments can be offered. Boyd-Bowman (1955:337-8) claims that the hypocoristics illustrated in (1)-(4) replicate processes found in child language: '...estas deformaciones se deben en gran parte al rudimentario sistema fonemático de los niños que aprenden a hablar, y a los esfuerzos conscientes que hacen los adultos, con intención cariñosa, para imitar ese sistema.' Later, he reiterates (p. 365): 'los hipocorísticos infantiles, más diversos, más efímeros, nos interesan principalmente porque en su conjunto obedecen a principios fonéticos que, aunque ajenos al español, forman sistema.' Unfortunately, these thought-provoking suggestions were not supplemented by empirical data from Spanish child language, but subsequent research has revealed recurring patterns which indeed coincide with the hypocoristic mapping strategies described in the present study. Thus, the reduction of OBSTRUENT + LIQUID onset clusters typically involves loss of the liquid, as in the edge-inward model proposed in the present study (cf. Fidelholtz and Montes 1990:511): *adentro* > *adento*, *negritos* > *neguitos*, *explotó* > *sepotó*, *abre* > *abe*, *compró* > *copó* (Montes Giraldo 1971:329), *puerta* > *peta* (Fantini 1985:161), etc. Elimination of semivowels in the onset or rhyme is also common in child language: *cielo* > *selo*, *puede* > *peye*, *llueve* > *yeye* (Fantini 1985:161), *abuelita* > *abeyita*, *cierra* > *serra*, *pieza* > *pesa*, etc. Loss of syllable-final consonants is abundantly documented (e.g. *azúcar* > *ahúca*, *esta* > *eta*, *puerta* > *peta*, *cristal* > *quitá* (Hernández Piña 1984:175), etc.). Loss of word-internal nasal consonants in the syllable rhyme is variable: *cansada* > *tasada*, *sentadita* > *setayita*, etc. Even reduplication of maximally simple CV syllables occurs spontaneously in child speech: *media* > *meme*, *haga* > *yaya*, *leche* > *tete*, *chupeta* > *pepa*, *Fuensanta* > *atáta*, *la casa* > *cacáca* (Hernández Piña 1984:171-184), *sopa* > *popa* (Montes Giraldo 1970; 1971:336), *agarra* > *ayaya* (Fantini 1985:165), etc. Combining word-initial consonants with elements from other syllables is exemplified in *víbora* > *boba*, *Córdoba*

> *oda*, *plátano* > *bano* (Canellada 1968-70:43), etc. The realization of /s/ as [s] is also widely attested in child language (Fidelholtz and Montes 1990, Hernández Piña 1984, etc.). Adult speakers replace this sound by the affricate [tʃ] (cf. Boyd-Bowman 1955:351). The replacement of /s/ by /tʃ/ in adult speech directed to children is one of the most common manifestations of Spanish 'baby talk' (cf. Vidal de Battini 1949:42). Basque systematically palatalizes all sibilants in affective speech (cf. Hualde 1991a:121-3), and Boyd-Bowman (1955:366) raises the question of a possible Basque contribution to the frequent use of /tʃ/ in Spanish hypocoristics. It is perhaps this frequent use of [s] (interpreted as /tʃ/) in Spanish child language that lies behind the use of /tʃ/ as the 'default' consonant in derivations such as *Ramón* > *Moncho*, *Fernán* > *Mincho*, etc. In adult Spanish, /tʃ/ is a relatively marked sound, but the imprecisely articulated sibilant approximating [s] in Spanish child language frequently replaces other consonants in the early stages of language acquisition, and can lay some claim to the status of a 'default' consonant in infantile Spanish. Finally, ongoing research into child language demonstrates the tendency, during the earliest stages of language acquisition, to ignore pretonic syllables, and to use an amalgam of the main stressed syllable and posttonic syllables in approximating words in received speech (e.g. Gerken 1992).

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